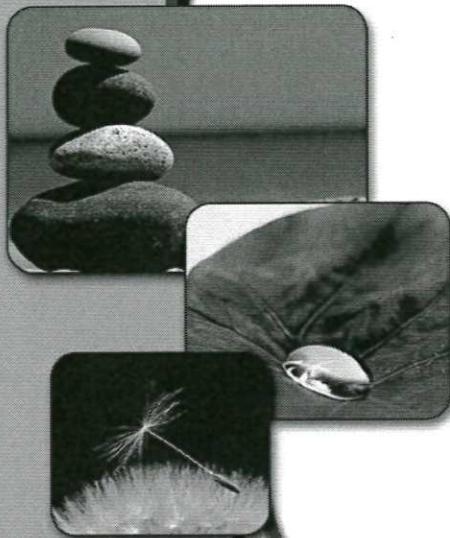


# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.  
TestAmerica Westfield  
Westfield Executive Park  
53 Southampton Road  
Westfield, MA 01085  
Tel: (413)572-4000

CHECKED FOR COMPLETENESS  
OF PARAMETERS ORDERED BY:  
Mr. James Cashwell

TestAmerica Job ID: 360-37595-1  
Client Project/Site: Olin Chemical

For:  
Olin Corporation  
PO BOX 248  
Charleston, Tennessee 37310-0248

Attn: Mr. James Cashwell

CR Reynolds

Authorized for release by:  
11/30/2011 3:39:38 PM  
Chris Reynolds  
QA Manager  
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Designee for  
Becky Mason  
Project Manager II  
becky.mason@testamericainc.com

### LINKS

Review your project  
results through

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[www.testamericainc.com](http://www.testamericainc.com)

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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## Case Narrative

Client: Olin Corporation  
Project/Site: Olin Chemical

TestAmerica Job ID: 360-37595-1

### Job ID: 360-37595-1

#### Laboratory: TestAmerica Westfield

##### Narrative

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

TestAmerica's Reporting Limits (RLs) for this report may not always meet WSC-CAM-III method reporting limits due to various reasons such as methodology, dilutions or moisture content (soils). TestAmerica's MA pivot table EDD documents which compound(s) exceed certain regulatory standards. If not included with your deliverables, please contact your Project Manager about the availability of this EDD for your report.

##### RECEIPT

The samples were received on 11/11/2011; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 6.0 C.

Note: All samples that require thermal preservation are considered acceptable if the arrival temperature is within the method's specified temperature range or for general analysis, ranging from 6°C to just above the freezing temperature of water. Samples that are hand delivered, immediately following collection, may not meet these criteria; however, they will be considered acceptable according to NELAC and State standards, if there is evidence that the chilling process has begun, such as stored and transported to the laboratory on ice.

##### TOTAL METALS (ICP)

Samples OC-SD-SD1-0.0/0.5 (360-37595-1), OC-SD-SD2-0.0/0.5 (360-37595-2), OC-SD-SD3-0.0/0.5 (360-37595-3), OC-SD-SD3 DUP-0.0/0.5 (360-37595-4), OC-SD-SD4-0.0/0.5 (360-37595-5) and OC-SD-SD5-0.0/0.5 (360-37595-6) were analyzed for total metals (ICP) in accordance with EPA SW-846 Method 6010B. The samples were prepared on 11/16/2011 and 11/21/2011 and analyzed on 11/18/2011 and 11/21/2011.

Aluminum and Iron were detected in method blank MB 360-83454/1-A at levels that were above the method detection limit but below the reporting limit. The values should be considered estimates, and have been flagged "J". If the associated sample reported a result above the MDL and/or RL, the result has been "B" flagged. Iron was detected in method blank MB 360-83671/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged "J". If the associated sample reported a result above the MDL and/or RL, the result has been "B" flagged. Refer to the QC report for details.

Aluminum and Iron failed the recovery criteria high for the MS of sample OC-SD-SD3-0.0/0.5MS (360-37595-3) in batch 360-83608.

Iron failed the recovery criteria low for the MSD of sample OC-SD-SD3-0.0/0.5MSD (360-37595-3) in batch 360-83608.

Iron failed the recovery criteria low for the MS of sample 360-37692-1 in batch 360-83721. Aluminum failed the recovery criteria high. The presence of the '4' qualifier in the report indicates analytes where the concentration in the unspiked sample exceeded four times the spiking amount. Refer to the QC report for details.

At the request of the client, an abbreviated/modified MCP analyte list was reported for this job.

No other difficulties were encountered during the metals analyses.

All other quality control parameters were within the acceptance limits.

##### PERCENT SOLIDS

Samples OC-SD-SD1-0.0/0.5 (360-37595-1), OC-SD-SD2-0.0/0.5 (360-37595-2), OC-SD-SD3-0.0/0.5 (360-37595-3), OC-SD-SD3 DUP-0.0/0.5 (360-37595-4), OC-SD-SD4-0.0/0.5 (360-37595-5) and OC-SD-SD5-0.0/0.5 (360-37595-6) were analyzed for percent solids in accordance with EPA Moisture. The samples were analyzed on 11/14/2011.

## Case Narrative

Client: Olin Corporation  
Project/Site: Olin Chemical

TestAmerica Job ID: 360-37595-1

### **Job ID: 360-37595-1 (Continued)**

#### **Laboratory: TestAmerica Westfield (Continued)**

No difficulties were encountered during the % solids analyses.

All quality control parameters were within the acceptance limits.

MassDEP Analytical Protocol Certification Form						
Laboratory Name:	TestAmerica Westfield			Project #:	360-37595-1	
Project Location:	Wilmington MA			RTN:		
This form provides certifications for the following data set: list Laboratory Sample ID Number(s): <b>360-37595-1 [1-8]</b>						
Matrices:	<input type="checkbox"/> Groundwater/Surface Water <input checked="" type="checkbox"/> Soil/Sediment <input type="checkbox"/> Drinking Water <input type="checkbox"/> Air <input type="checkbox"/> Other:					
<b>CAM Protocols (check all that apply below):</b>						
8260 VOC CAM II A <input type="checkbox"/>	7470/7471 Hg CAM III B <input type="checkbox"/>	Mass DEP VPH CAM IV A <input type="checkbox"/>	8081 Pesticides CAM V B <input type="checkbox"/>	7196 Hex Cr CAM VI B <input type="checkbox"/>	Mass DEP APH CAM IX A <input type="checkbox"/>	
8270 SVOC CAM II B <input type="checkbox"/>	7010 Metals CAM III C <input type="checkbox"/>	Mass DEP EPH CAM IV B <input type="checkbox"/>	8151 Herbicides CAM V C <input type="checkbox"/>	8330 Explosives CAM VIII A <input type="checkbox"/>	TO-15 VOC CAM IX B <input type="checkbox"/>	
6010 Metals CAM III A <input checked="" type="checkbox"/>	6020 Metals CAM III D <input type="checkbox"/>	8082 PCB CAM V A <input type="checkbox"/>	9014 Total Cyanide/PAC CAM VI A <input type="checkbox"/>	332.0 Perchlorate CAM VIII B <input type="checkbox"/>		
<b>Affirmative Responses to Questions A through F are required for "Presumptive Certainty" status</b>						
<b>A</b>	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding time.					<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<b>B</b>	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?					<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<b>C</b>	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?					<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<b>D</b>	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?					<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<b>E</b>	a. VPH, EPH and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). b. APH and TO-15 Methods only: Was the complete analyte list reported for each method?					<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No
<b>F</b>	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?					<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<b>Responses to Questions G, H and I below are required for "Presumptive Certainty" status</b>						
<b>G</b>	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?					<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <sup>1</sup>
<i>Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WCS-07-350</i>						
<b>H</b>	Were all QC performance standards specified in the CAM protocol(s) achieved?					<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<b>I</b>	Were results reported for the complete analyte list specified in the selected CAM protocol(s) ?					<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<sup>1</sup> All negative responses must be addressed in an attached laboratory narrative.						
<i>I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, is accurate and complete.</i>						
Signature:					Position:	Quality Assurance Manager
Printed Name:	Christine Reynolds			Date:	11/30/11 15:32	
This form has been electronically signed and approved						

## Detection Summary

Client: Olin Corporation  
Project/Site: Olin Chemical

TestAmerica Job ID: 360-37595-1

**Client Sample ID: OC-SD-SD1-0.0/0.5**

**Lab Sample ID: 360-37595-1**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Aluminum	11000	B	13	1.8	mg/Kg	1	⊗	6010B	Total/NA
Chromium	30		0.84	0.42	mg/Kg	1	⊗	6010B	Total/NA
Iron	13000	B	30	1.6	mg/Kg	1	⊗	6010B	Total/NA

**Client Sample ID: OC-SD-SD2-0.0/0.5**

**Lab Sample ID: 360-37595-2**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Aluminum	11000	B	11	1.6	mg/Kg	1	⊗	6010B	Total/NA
Chromium	130		0.72	0.36	mg/Kg	1	⊗	6010B	Total/NA
Iron	14000	B	25	1.4	mg/Kg	1	⊗	6010B	Total/NA

**Client Sample ID: OC-SD-SD3-0.0/0.5**

**Lab Sample ID: 360-37595-3**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Aluminum	9700	B	13	1.8	mg/Kg	1	⊗	6010B	Total/NA
Chromium	35		0.84	0.42	mg/Kg	1	⊗	6010B	Total/NA
Iron	14000	B	29	1.6	mg/Kg	1	⊗	6010B	Total/NA

**Client Sample ID: OC-SD-SD3 DUP-0.0/0.5**

**Lab Sample ID: 360-37595-4**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Aluminum	9800		11	1.6	mg/Kg	1	⊗	6010B	Total/NA
Chromium	45		0.73	0.37	mg/Kg	1	⊗	6010B	Total/NA
Iron	14000	B	26	1.4	mg/Kg	1	⊗	6010B	Total/NA

**Client Sample ID: OC-SD-SD4-0.0/0.5**

**Lab Sample ID: 360-37595-5**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Aluminum	9900	B	14	2.1	mg/Kg	1	⊗	6010B	Total/NA
Chromium	140		0.95	0.48	mg/Kg	1	⊗	6010B	Total/NA
Iron	17000	B	33	1.8	mg/Kg	1	⊗	6010B	Total/NA

**Client Sample ID: OC-SD-SD5-0.0/0.5**

**Lab Sample ID: 360-37595-6**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Aluminum	11000		11	1.7	mg/Kg	1	⊗	6010B	Total/NA
Chromium	59		0.76	0.38	mg/Kg	1	⊗	6010B	Total/NA
Iron	15000	B	27	1.4	mg/Kg	1	⊗	6010B	Total/NA

## Method Summary

Client: Olin Corporation  
Project/Site: Olin Chemical

TestAmerica Job ID: 360-37595-1

Method	Method Description	Protocol	Laboratory
6010B	Metals (ICP)	SW846	TAL WFD
Moisture	Percent Moisture	EPA	TAL WFD

**Protocol References:**

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

**Laboratory References:**

TAL WFD = TestAmerica Westfield, Westfield Executive Park, 53 Southampton Road, Westfield, MA 01085, TEL (413)572-4000

## Sample Summary

Client: Olin Corporation  
Project/Site: Olin Chemical

TestAmerica Job ID: 360-37595-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
360-37595-1	OC-SD-SD1-0.0/0.5	Solid	11/11/11 12:35	11/11/11 17:25
360-37595-2	OC-SD-SD2-0.0/0.5	Solid	11/11/11 12:20	11/11/11 17:25
360-37595-3	OC-SD-SD3-0.0/0.5	Solid	11/11/11 12:10	11/11/11 17:25
360-37595-4	OC-SD-SD3 DUP-0.0/0.5	Solid	11/11/11 12:10	11/11/11 17:25
360-37595-5	OC-SD-SD4-0.0/0.5	Solid	11/11/11 12:00	11/11/11 17:25
360-37595-6	OC-SD-SD5-0.0/0.5	Solid	11/11/11 11:50	11/11/11 17:25

# Client Sample Results

Client: Olin Corporation  
Project/Site: Olin Chemical

TestAmerica Job ID: 360-37595-1

## Method: 6010B - Metals (ICP)

**Client Sample ID: OC-SD-SD1-0.0/0.5**

**Date Collected: 11/11/11 12:35**

**Date Received: 11/11/11 17:25**

**Lab Sample ID: 360-37595-1**

**Matrix: Solid**

**Percent Solids: 71.5**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	11000	B	13	1.8	mg/Kg	⊗	11/16/11 12:50	11/18/11 12:26	1
Chromium	30		0.84	0.42	mg/Kg	⊗	11/16/11 12:50	11/18/11 12:26	1
Iron	13000	B	30	1.6	mg/Kg	⊗	11/16/11 12:50	11/18/11 12:26	1

**Client Sample ID: OC-SD-SD2-0.0/0.5**

**Date Collected: 11/11/11 12:20**

**Date Received: 11/11/11 17:25**

**Lab Sample ID: 360-37595-2**

**Matrix: Solid**

**Percent Solids: 75.0**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	11000	B	11	1.6	mg/Kg	⊗	11/16/11 12:50	11/18/11 12:29	1
Chromium	130		0.72	0.36	mg/Kg	⊗	11/16/11 12:50	11/18/11 12:29	1
Iron	14000	B	25	1.4	mg/Kg	⊗	11/16/11 12:50	11/18/11 12:29	1

**Client Sample ID: OC-SD-SD3-0.0/0.5**

**Date Collected: 11/11/11 12:10**

**Date Received: 11/11/11 17:25**

**Lab Sample ID: 360-37595-3**

**Matrix: Solid**

**Percent Solids: 72.3**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	9700	B	13	1.8	mg/Kg	⊗	11/16/11 12:50	11/18/11 12:11	1
Chromium	35		0.84	0.42	mg/Kg	⊗	11/16/11 12:50	11/18/11 12:11	1
Iron	14000	B	29	1.6	mg/Kg	⊗	11/16/11 12:50	11/18/11 12:11	1

**Client Sample ID: OC-SD-SD3 DUP-0.0/0.5**

**Date Collected: 11/11/11 12:10**

**Date Received: 11/11/11 17:25**

**Lab Sample ID: 360-37595-4**

**Matrix: Solid**

**Percent Solids: 74.2**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	9800		11	1.6	mg/Kg	⊗	11/21/11 10:33	11/21/11 18:10	1
Chromium	45		0.73	0.37	mg/Kg	⊗	11/21/11 10:33	11/21/11 18:10	1
Iron	14000	B	26	1.4	mg/Kg	⊗	11/21/11 10:33	11/21/11 18:10	1

**Client Sample ID: OC-SD-SD4-0.0/0.5**

**Date Collected: 11/11/11 12:00**

**Date Received: 11/11/11 17:25**

**Lab Sample ID: 360-37595-5**

**Matrix: Solid**

**Percent Solids: 65.7**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	9900	B	14	2.1	mg/Kg	⊗	11/16/11 12:50	11/18/11 12:32	1
Chromium	140		0.95	0.48	mg/Kg	⊗	11/16/11 12:50	11/18/11 12:32	1
Iron	17000	B	33	1.8	mg/Kg	⊗	11/16/11 12:50	11/18/11 12:32	1

**Client Sample ID: OC-SD-SD5-0.0/0.5**

**Date Collected: 11/11/11 11:50**

**Date Received: 11/11/11 17:25**

**Lab Sample ID: 360-37595-6**

**Matrix: Solid**

**Percent Solids: 73.3**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	11000		11	1.7	mg/Kg	⊗	11/21/11 10:33	11/21/11 18:13	1
Chromium	59		0.76	0.38	mg/Kg	⊗	11/21/11 10:33	11/21/11 18:13	1
Iron	15000	B	27	1.4	mg/Kg	⊗	11/21/11 10:33	11/21/11 18:13	1

# Client Sample Results

Client: Olin Corporation  
Project/Site: Olin Chemical

TestAmerica Job ID: 360-37595-1

## General Chemistry

Client Sample ID: OC-SD-SD1-0.0/0.5

Lab Sample ID: 360-37595-1

Date Collected: 11/11/11 12:35

Matrix: Solid

Date Received: 11/11/11 17:25

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	29		1.0	1.0	%			11/14/11 10:27	1
Percent Solids	71		1.0	1.0	%			11/14/11 10:27	1

Client Sample ID: OC-SD-SD2-0.0/0.5

Lab Sample ID: 360-37595-2

Date Collected: 11/11/11 12:20

Matrix: Solid

Date Received: 11/11/11 17:25

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	25		1.0	1.0	%			11/14/11 10:27	1
Percent Solids	75		1.0	1.0	%			11/14/11 10:27	1

Client Sample ID: OC-SD-SD3-0.0/0.5

Lab Sample ID: 360-37595-3

Date Collected: 11/11/11 12:10

Matrix: Solid

Date Received: 11/11/11 17:25

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	28		1.0	1.0	%			11/14/11 10:27	1
Percent Solids	72		1.0	1.0	%			11/14/11 10:27	1

Client Sample ID: OC-SD-SD3 DUP-0.0/0.5

Lab Sample ID: 360-37595-4

Date Collected: 11/11/11 12:10

Matrix: Solid

Date Received: 11/11/11 17:25

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	26		1.0	1.0	%			11/14/11 10:27	1
Percent Solids	74		1.0	1.0	%			11/14/11 10:27	1

Client Sample ID: OC-SD-SD4-0.0/0.5

Lab Sample ID: 360-37595-5

Date Collected: 11/11/11 12:00

Matrix: Solid

Date Received: 11/11/11 17:25

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	34		1.0	1.0	%			11/14/11 10:27	1
Percent Solids	66		1.0	1.0	%			11/14/11 10:27	1

Client Sample ID: OC-SD-SD5-0.0/0.5

Lab Sample ID: 360-37595-6

Date Collected: 11/11/11 11:50

Matrix: Solid

Date Received: 11/11/11 17:25

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	27		1.0	1.0	%			11/14/11 10:27	1
Percent Solids	73		1.0	1.0	%			11/14/11 10:27	1

## Definitions/Glossary

Client: Olin Corporation  
Project/Site: Olin Chemical

TestAmerica Job ID: 360-37595-1

### Qualifiers

#### Metals

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
4	MS, MSD: The analyte present in the original sample is 4 times greater than the matrix spike concentration; therefore, control limits are not applicable.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

### Glossary

#### Abbreviation

These commonly used abbreviations may or may not be present in this report.

DR	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
EDL	Estimated Detection Limit
EPA	United States Environmental Protection Agency
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
RL	Reporting Limit
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# QC Association Summary

Client: Olin Corporation  
Project/Site: Olin Chemical

TestAmerica Job ID: 360-37595-1

## Metals

### Prep Batch: 83454

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
360-37595-1	OC-SD-SD1-0.0/0.5	Total/NA	Solid	3050B	5
360-37595-2	OC-SD-SD2-0.0/0.5	Total/NA	Solid	3050B	5
360-37595-3	OC-SD-SD3-0.0/0.5	Total/NA	Solid	3050B	5
360-37595-3 MS	OC-SD-SD3-0.0/0.5	Total/NA	Solid	3050B	6
360-37595-3 MSD	OC-SD-SD3-0.0/0.5	Total/NA	Solid	3050B	7
360-37595-5	OC-SD-SD4-0.0/0.5	Total/NA	Solid	3050B	7
LCDSRM 360-83454/3-A LCDSF	Lab Control Sample Dup	Total/NA	Solid	3050B	8
LCSSRM 360-83454/2-A	Lab Control Sample	Total/NA	Solid	3050B	8
MB 360-83454/1-A	Method Blank	Total/NA	Solid	3050B	9

### Analysis Batch: 83608

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
360-37595-1	OC-SD-SD1-0.0/0.5	Total/NA	Solid	6010B	83454
360-37595-2	OC-SD-SD2-0.0/0.5	Total/NA	Solid	6010B	83454
360-37595-3	OC-SD-SD3-0.0/0.5	Total/NA	Solid	6010B	83454
360-37595-3 MS	OC-SD-SD3-0.0/0.5	Total/NA	Solid	6010B	83454
360-37595-3 MSD	OC-SD-SD3-0.0/0.5	Total/NA	Solid	6010B	83454
360-37595-5	OC-SD-SD4-0.0/0.5	Total/NA	Solid	6010B	83454
LCDSRM 360-83454/3-A LCDSF	Lab Control Sample Dup	Total/NA	Solid	6010B	83454
LCSSRM 360-83454/2-A	Lab Control Sample	Total/NA	Solid	6010B	83454
MB 360-83454/1-A	Method Blank	Total/NA	Solid	6010B	83454

### Prep Batch: 83671

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
360-37595-4	OC-SD-SD3 DUP-0.0/0.5	Total/NA	Solid	3050B	
360-37595-6	OC-SD-SD5-0.0/0.5	Total/NA	Solid	3050B	
LCDSRM 360-83671/3-A LCDSF	Lab Control Sample Dup	Total/NA	Solid	3050B	
LCSSRM 360-83671/2-A	Lab Control Sample	Total/NA	Solid	3050B	
MB 360-83671/1-A	Method Blank	Total/NA	Solid	3050B	

### Analysis Batch: 83721

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
360-37595-4	OC-SD-SD3 DUP-0.0/0.5	Total/NA	Solid	6010B	83671
360-37595-6	OC-SD-SD5-0.0/0.5	Total/NA	Solid	6010B	83671
LCDSRM 360-83671/3-A LCDSF	Lab Control Sample Dup	Total/NA	Solid	6010B	83671
LCSSRM 360-83671/2-A	Lab Control Sample	Total/NA	Solid	6010B	83671
MB 360-83671/1-A	Method Blank	Total/NA	Solid	6010B	83671

## General Chemistry

### Analysis Batch: 83312

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
360-37595-1	OC-SD-SD1-0.0/0.5	Total/NA	Solid	Moisture	
360-37595-2	OC-SD-SD2-0.0/0.5	Total/NA	Solid	Moisture	
360-37595-3	OC-SD-SD3-0.0/0.5	Total/NA	Solid	Moisture	
360-37595-3 MS	OC-SD-SD3-0.0/0.5	Total/NA	Solid	Moisture	
360-37595-3 MSD	OC-SD-SD3-0.0/0.5	Total/NA	Solid	Moisture	
360-37595-4	OC-SD-SD3 DUP-0.0/0.5	Total/NA	Solid	Moisture	
360-37595-5	OC-SD-SD4-0.0/0.5	Total/NA	Solid	Moisture	
360-37595-6	OC-SD-SD5-0.0/0.5	Total/NA	Solid	Moisture	

# QC Sample Results

Client: Olin Corporation  
Project/Site: Olin Chemical

TestAmerica Job ID: 360-37595-1

## Method: 6010B - Metals (ICP)

**Lab Sample ID:** MB 360-83454/1-A

**Matrix:** Solid

**Analysis Batch:** 83608

**Client Sample ID:** Method Blank

**Prep Type:** Total/NA

**Prep Batch:** 83454

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Aluminum	6.36	J	7.5	1.1	mg/Kg		11/16/11 12:50	11/18/11 11:57	1
Chromium	ND		0.50	0.25	mg/Kg		11/16/11 12:50	11/18/11 11:57	1
Iron	16.0	J	18	0.94	mg/Kg		11/16/11 12:50	11/18/11 11:57	1

**Lab Sample ID:** LCDSRM 360-83454/3-A LCDSRM

**Matrix:** Solid

**Analysis Batch:** 83608

**Client Sample ID:** Lab Control Sample Dup

**Prep Type:** Total/NA

**Prep Batch:** 83454

Analyte	Spike	LCDSRM	LCDSRM	%Rec.			RPD		
	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Aluminum	7740	13000		mg/Kg		169	89.9 - 279	1	30
Chromium	272	242		mg/Kg		89	68.0 - 124	0	30
Iron	13100	20400		mg/Kg		156	68.6 - 239	1	30

**Lab Sample ID:** LCSSRM 360-83454/2-A

**Matrix:** Solid

**Analysis Batch:** 83608

**Client Sample ID:** Lab Control Sample

**Prep Type:** Total/NA

**Prep Batch:** 83454

Analyte	Spike	LCSSRM	LCSSRM	%Rec.			
	Added	Result	Qualifier	Unit	D	%Rec	Limits
Aluminum	7740	13200		mg/Kg		170	89.9 - 279
Chromium	272	243		mg/Kg		89	68.0 - 124
Iron	13100	20200		mg/Kg		154	68.6 - 239

**Lab Sample ID:** 360-37595-3 MS

**Matrix:** Solid

**Analysis Batch:** 83608

**Client Sample ID:** OC-SD-SD3-0.0/0.5

**Prep Type:** Total/NA

**Prep Batch:** 83454

Analyte	Sample	Sample	Spike	MS	MS	%Rec.			
	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits
Aluminum	9700	B	417	10600	4	mg/Kg	⊗	224	75 - 125
Chromium	35		83.3	139		mg/Kg	⊗	125	75 - 125
Iron	14000	B	417	15900	4	mg/Kg	⊗	494	75 - 125

**Lab Sample ID:** 360-37595-3 MSD

**Matrix:** Solid

**Analysis Batch:** 83608

**Client Sample ID:** OC-SD-SD3-0.0/0.5

**Prep Type:** Total/NA

**Prep Batch:** 83454

Analyte	Sample	Sample	Spike	MSD	MSD	%Rec.			RPD
	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limit
Aluminum	9700	B	422	10000	4	mg/Kg	⊗	79	75 - 125
Chromium	35		84.3	130		mg/Kg	⊗	113	75 - 125
Iron	14000	B	422	13300	4	mg/Kg	⊗	-124	75 - 125

**Lab Sample ID:** MB 360-83671/1-A

**Matrix:** Solid

**Analysis Batch:** 83721

**Client Sample ID:** Method Blank

**Prep Type:** Total/NA

**Prep Batch:** 83671

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Aluminum	ND		7.5	1.1	mg/Kg		11/21/11 10:33	11/21/11 17:20	1
Chromium	ND		0.50	0.25	mg/Kg		11/21/11 10:33	11/21/11 17:20	1
Iron	1.75	J	18	0.94	mg/Kg		11/21/11 10:33	11/21/11 17:20	1

# QC Sample Results

Client: Olin Corporation  
Project/Site: Olin Chemical

TestAmerica Job ID: 360-37595-1

## Method: 6010B - Metals (ICP) (Continued)

**Lab Sample ID: LCDSRM 360-83671/3-A LCDSRM**

**Matrix: Solid**

**Analysis Batch: 83721**

**Client Sample ID: Lab Control Sample Dup**

**Prep Type: Total/NA**

**Prep Batch: 83671**

Analyte	Spike	LCDSRM	LCDSRM	%Rec.			RPD	RPD
	Added	Result	Qualifier	Unit	D	%Rec	Limits	Limit
Aluminum	7740	17100		mg/Kg		221	89.9 - 279	12
Chromium		272	255	mg/Kg		94	68.0 - 124	5
Iron		13100	23000	mg/Kg		176	68.6 - 239	5

**Lab Sample ID: LCSSRM 360-83671/2-A**

**Matrix: Solid**

**Analysis Batch: 83721**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

**Prep Batch: 83671**

Analyte	Spike	LCSSRM	LCSSRM	%Rec.			RPD	RPD
	Added	Result	Qualifier	Unit	D	%Rec	Limits	Limit
Aluminum	7740	15200		mg/Kg		197	89.9 - 279	12
Chromium		272	267	mg/Kg		98	68.0 - 124	5
Iron		13100	21900	mg/Kg		167	68.6 - 239	5

## Lab Chronicle

Client: Olin Corporation  
Project/Site: Olin Chemical

TestAmerica Job ID: 360-37595-1

**Client Sample ID: OC-SD-SD1-0.0/0.5**

**Lab Sample ID: 360-37595-1**

**Date Collected: 11/11/11 12:35**

**Matrix: Solid**

**Date Received: 11/11/11 17:25**

**Percent Solids: 71.5**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			83454	11/16/11 12:50	OG	TAL WFD
Total/NA	Analysis	6010B		1	83608	11/18/11 12:26	TJS	TAL WFD
Total/NA	Analysis	Moisture		1	83312	11/14/11 10:27	OG	TAL WFD

**Client Sample ID: OC-SD-SD2-0.0/0.5**

**Lab Sample ID: 360-37595-2**

**Date Collected: 11/11/11 12:20**

**Matrix: Solid**

**Date Received: 11/11/11 17:25**

**Percent Solids: 75.0**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			83454	11/16/11 12:50	OG	TAL WFD
Total/NA	Analysis	6010B		1	83608	11/18/11 12:29	TJS	TAL WFD
Total/NA	Analysis	Moisture		1	83312	11/14/11 10:27	OG	TAL WFD

**Client Sample ID: OC-SD-SD3-0.0/0.5**

**Lab Sample ID: 360-37595-3**

**Date Collected: 11/11/11 12:10**

**Matrix: Solid**

**Date Received: 11/11/11 17:25**

**Percent Solids: 72.3**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			83454	11/16/11 12:50	OG	TAL WFD
Total/NA	Analysis	6010B		1	83608	11/18/11 12:11	TJS	TAL WFD
Total/NA	Analysis	Moisture		1	83312	11/14/11 10:27	OG	TAL WFD

**Client Sample ID: OC-SD-SD3 DUP-0.0/0.5**

**Lab Sample ID: 360-37595-4**

**Matrix: Solid**

**Date Received: 11/11/11 17:25**

**Percent Solids: 74.2**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			83671	11/21/11 10:33	EMN	TAL WFD
Total/NA	Analysis	6010B		1	83721	11/21/11 18:10	TJS	TAL WFD
Total/NA	Analysis	Moisture		1	83312	11/14/11 10:27	OG	TAL WFD

**Client Sample ID: OC-SD-SD4-0.0/0.5**

**Lab Sample ID: 360-37595-5**

**Matrix: Solid**

**Date Received: 11/11/11 17:25**

**Percent Solids: 65.7**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			83454	11/16/11 12:50	OG	TAL WFD
Total/NA	Analysis	6010B		1	83608	11/18/11 12:32	TJS	TAL WFD
Total/NA	Analysis	Moisture		1	83312	11/14/11 10:27	OG	TAL WFD

## Lab Chronicle

Client: Olin Corporation  
Project/Site: Olin Chemical

TestAmerica Job ID: 360-37595-1

**Client Sample ID: OC-SD-SD5-0.0/0.5**

**Lab Sample ID: 360-37595-6**

**Date Collected:** 11/11/11 11:50  
**Date Received:** 11/11/11 17:25

**Matrix:** Solid

**Percent Solids:** 73.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			83671	11/21/11 10:33	EMN	TAL WFD
Total/NA	Analysis	6010B		1	83721	11/21/11 18:13	TJS	TAL WFD
Total/NA	Analysis	Moisture		1	83312	11/14/11 10:27	OG	TAL WFD

**Laboratory References:**

TAL WFD = TestAmerica Westfield, Westfield Executive Park, 53 Southampton Road, Westfield, MA 01085, TEL (413)572-4000

## Certification Summary

Client: Olin Corporation  
Project/Site: Olin Chemical

TestAmerica Job ID: 360-37595-1

Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica Westfield	Connecticut	State Program	1	PH-0494
TestAmerica Westfield	Maine	State Program	1	MA00014
TestAmerica Westfield	Massachusetts	State Program	1	M-MA014
TestAmerica Westfield	New Hampshire	NELAC	1	2539
TestAmerica Westfield	New York	NELAC	2	10843
TestAmerica Westfield	North Carolina	North Carolina DENR	4	647
TestAmerica Westfield	Rhode Island	State Program	1	LAO00057

Accreditation may not be offered or required for all methods and analytes reported in this package. Please contact your project manager for the laboratory's current list of certified methods and analytes.

# State Accreditation Matrix

Method Name	Description	State where Primary Accreditation is Carried		
		New Hampshire (NELAC)	Mass	Conn
821-R-02-012	Toxicity, Acute (48-Hour)(list upon request)	NP		
SM 4500 CI F	Chlorine, Residual		NP	
SM 9215E	Heterotrophic Plate Count (SimPlate)		P	
SM 9222D	Coliforms, Fecal (Membrane Filter)		P/NP	
SM 9223	Coliforms, Total, and E.Coli (Colilert-P/A)		P	
SM 9224	Coliforms, Total, and E.Coli (Enumeration)		P	
1103.1	E.coli	ambient/source		
Enterolert	Enterococcus			
200.8 Rev 5.4	Metals (ICP/MS) (list upon request)	NP/P	NP/P	
200.7 Rev 4.4	Metals (ICP)(list upon request)	NP/P	NP/P	
6010B/C	Metals (ICP)(list upon request)	NP/SW		
245.1	Mercury (CVAA)	NP/P	NP	
7470A	Mercury (CVAA)	NP		
7471A	Mercury (CVAA)	SW		
SM 2340B	Total Hardness (as CaCO <sub>3</sub> ) by calculation	NP/P	NP	
3005A	Preparation, Total Recoverable or Dissolved Metals	NP/P		
3010A	Preparation, Total Metals	NP/P		
3020A	Preparation, Total Metals	NP/P/SW		
3050B	Preparation, Metals	SW		
504.1	EDB, DBCP and 1,2,3-TCP (GC)	P	P	
608	Organochlorine Pest/PCBs (list upon request)	NP	NP	
625	Semivolatile Org Comp (GC/MS)(list upon request)	NP	NP	
3546	Microwave Extraction	SW		
3510C	Liquid-Liquid Extraction (Separatory Funnel)	NP		
3550B	Ultrasonic Extraction	SW		
8081AB	Organochlorine Pesticides (GC)(list upon request)	NP/SW		
8082/A	PCBs by Gas Chromatography(list upon request)	NP/SW		
8270C/D	Semivolatile Comp.(GC/MS)(list upon request)	NP/SW		
CT ETPH	Conn - Ext. Total petroleum Hydrocarbons (GC)	NP/SW		NP/SW
MA-EPH	Mass - Extractable Petroleum Hydrocarbons (GC)	NP/SW		
524.2	Volatile Org Comp (GC/MS)(list upon request)	P	P	
524.2	Trihalomethane compounds	P	P	
624	Volatile Org Comp (GC/MS)(list upon request)	NP	NP	
5035	Closed System Purge and Trap	SW		
5030B	Purge and Trap	NP		
8260B/C	Volatile Org Comp. (GC/MS)(list upon request)	NP/SW		
MAVPH	Mass - Volatile Petroleum Hydrocarbons (GC)			
180.1	Turbidity, Nephelometric	P	P	
300	Anions, Ion Chromatography	NP/P	NP/P	
410.4	COD	NP	NP	
1010	Ignitability, Pensky-Martens Closed-Cup Method	SW		
10-107-06-2	Nitrogen, Total Kjeldahl	NP	NP	
7196A	Chromium, Hexavalent	NP/SW		
9012A	Cyanide, Total and/or Amenable	NP/SW		
9030B	Sulfide, Distillation (Acid Soluble and Insoluble)	NP		
9045C	pH	SW		
L107041C	Nitrogen, Nitrate	NP	P	
L107-06-1B	Nitrogen Ammonia	NP	NP	
L204001A CN	Cyanide, Total	P	NP/P	
L210-001A	Phenolics, Total Recoverable	NP	NP	
SM 2320B	Alkalinity	NP/P	NP/P	
SM 2510B	Conductivity, Specific Conductance	NP/P	NP/P	
SM 2540C	Solids, Total Dissolved (TDS)	NP/P	NP/P	
SM 2540D	Solids, Total Suspended (TSS)	NP	NP	
SM 3500 CR D	Chromium, Hexavalent	NP		
SM 4500 H+ B	pH	NP/P	NP/P	
SM 4500 NO2 B	Nitrogen, Nitrite	NP	P	
SM 4500 P E	Phosphorus, Orthophosphate	NP/P	NP	
SM 4500 P E	Phosphorus, Total	NP	NP	
SM 4500 S2 D	Sulfide, Total	NP		
SM 5210B	BOD, 5-Day	NP	NP	
SM 5310B	Organic Carbon, Total (TOC)	NP/P	NP	

Not all organic compounds are accredited under NELAC

For methods with multiple compounds all compounds may not meet NELAC criteria, listing should be obtained from the laboratory

The lab carries additional accreditations with several states. This is the laboratories typical listing but is subject to change based on the laboratories current certification standing.

## Login Sample Receipt Checklist

Client: Olin Corporation

Job Number: 360-37595-1

**Login Number: 37595**

**List Source: TestAmerica Westfield**

**List Number: 1**

**Creator: Ard, Vanessa L**

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	N/A	
The cooler's custody seal, if present, is intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

### Chain of Custody Record

Phone (413) 572-4000 Fax (413) 572-3707